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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,569	09/19/2003	Yoshitaka Noguchi	5087.314-US	8600

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NOVOZYMES NORTH AMERICA, INC.
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NEW YORK, NY 10110

EXAMINER

ALVO, MARC S

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 02/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/666,569

Applicant(s)

NOGUCHI ET AL.

Examiner

Steve Alvo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/371,343.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9-19-2004</u> . | 6) <input type="checkbox"/> Other: ____. |

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over HYATT et al (6,057,438) in view of SAITO et al (4,250,305).

HYATT et al teaches producing dissolving grade pulp to be used in the preparation of cellulose ethers by treating a pulp with a hemicellulase under conditions in which the hemicellulase is enzymatically active (column 7, lines 4-7). It would have been obvious to the routineer that the xylanase of HYATT et al is a hemicellulase as hemicelloses are chiefly xylans, see HYATT et al, column 2, lines 50-51. HYATT et al teaches producing a dissolving pulp that can be used in the preparation of cellulose ethers and SAITO teaches producing a cellulose ether from dissolving pulp by etherification, . It would have been obvious to the artisan to use the process of SAITO to produce the cellulose ether taught by HYATT et al, see SAITO et al, column 16, Example 5, for etherification of dissolving pulp. It would have been obvious to subject the dissolving pulp of HYATT et al to etherification to produce the cellulase ethers in the manner taught by SAITO et al. It is noted that claim 3 calls for the hemicellulase to be xylanase which is the same hemicellulase used by HYATT et al.

Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over HYATT et al (6,057,438) in view of SAITO et al (4,250,305) as applied to claim 1 above, and further in view of WO 96/02632 (equivalent to U.S. Patent 5,658,765).

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WO 96/02632 teaches using *Bacillus* sp. SD902 to produce a xylanase (hemicellulase) enzyme to modify cellulosic pulp. It would have been obvious to substitute the cellulase enzyme of WO/9602632 for the xylanase enzyme HYATT et al as they perform the same function of degrading the hemicellulose. See WO/9602632 for hydrolyzing the β -1,4 glycoside bonds. Besides the same bonds would be hydrolyzed when the same enzyme is used, e.g. *Bacillus* sp. SD902.

It is noted that the examples 1-3 show unexpected results of the instant process over a process without enzymatic pretreatment. It is not a comparison of the closest prior art. HYATT et al teaches enzymatic pretreatment to produce a cellulose that can be etherified. The Examples all use *Bacillus* sp. SD902 (SDX enzyme). Only claim 4 is limited to this enzyme. A comparison of SDX-enzyme to the enzymes of HYATT et al has not been made.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steve Alvo whose telephone number is 571-272-1185. The examiner can normally be reached on 6:00 AM to 2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steve Alvo
Primary Examiner
Art Unit 1731

msa